N-OF-1 SYMPTOM DIARY

A Complete Guide to Running Your Own Personal Medicine Experiment

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scvc.co.uk | The VAT-TRAP N-of-1 Companion Series

Part One: The Article

Your Body, Your Experiment

Why conventional medicine does not always answer your personal question

When your doctor prescribes a statin, they are making a decision rooted in **population data**. Clinical trials enroll thousands of participants and report average effects. But you are not an average. You are one person with a unique genetic makeup, a unique microbiome, a unique exercise history, and a unique set of concurrent medications. The question *"does this statin cause my muscle cramps?"* cannot be answered by a trial that enrolled 10,000 people. It can only be answered by you, studying yourself, systematically.

This is the essence of the **N-of-1 trial** — a scientific method in which the individual is simultaneously the subject and the control. It is not a new concept: physicians have conducted structured self-experiments for centuries. What is new is the availability of simple, accessible tools that let any patient do this rigorously, at home, without a laboratory.

The **N-of-1 Symptom Diary** you hold (or have just downloaded) is one such tool. It provides a year-at-a-glance visual record of every day, designed so that a single coloured dot or blob, placed by hand each evening, builds — over weeks — into a pattern that no questionnaire, no blood test, and no clinic appointment could reveal on its own.

The problem with statin side effects

Statins are among the most-prescribed drugs in the world and their benefit in reducing cardiovascular events is not in doubt. They lower LDL cholesterol, reduce inflammation in arterial plaques, and in high-risk individuals reduce the risk of heart attack by 30–40%. For the majority of patients, they are well tolerated.

Yet roughly **10% of patients starting a statin** notice *something* — a new ache, a sense of fatigue, a change in sleep, a fogginess — and cannot be certain whether the drug is responsible. This uncertainty is made worse by several overlapping factors:

- **The nocebo effect.** Simply reading a side-effect leaflet increases the probability of experiencing those symptoms. Expectation is powerful.
- **Life stage overlap.** Statins are typically started in mid-life, when muscle soreness from exercise, joint stiffness, and fatigue are independently more common.
- **Fluctuation.** Many symptoms — palpitations, muscle cramps, brain fog — come and go regardless of medication, making attribution by memory unreliable.
- **Recall bias.** Patients asked at a clinic appointment to recall symptoms over the past month systematically overestimate bad periods and underestimate good ones.

The answer to all four problems is the same: **prospective daily recording**. If you write something down each evening, you cannot later misremember it. If you record it on a calendar grid, you can

see at a glance whether the pattern of symptoms aligns with when you started, stopped, or changed your medication.

The statin holiday: a structured experiment

A **statin holiday** is a temporary, planned discontinuation of statin therapy — typically four to six weeks — undertaken with the full knowledge and approval of your prescribing doctor. It is not a decision to abandon treatment. It is a diagnostic manoeuvre: a way of generating the kind of personal evidence that clinical trials cannot provide.

The structure matters enormously. An unplanned, unrecorded break tells you very little. A break embedded within a structured N-of-1 trial — with a baseline phase before, a rechallenge phase after, and daily symptom recording throughout — can yield compelling evidence, good enough to change a clinical decision with confidence.

> **Key principle: correlation is not causation — but a pattern is evidence**
>
> If your muscle cramps disappear during a four-week holiday, reappear within two weeks of restarting, and again disappear when you switch to a lower dose of a different statin, that three-phase pattern is strong personal evidence of a causal relationship. No single phase is conclusive. The pattern across phases is.

Beyond statins: a tool for any therapeutic question

Although this guide uses statins as the primary example — because the statin holiday is a well-recognised clinical strategy — the N-of-1 diary is a general-purpose tool. The same daily dot approach can be applied to any intervention whose effects unfold over weeks:

- Starting or stopping an antihypertensive and tracking blood pressure symptoms or headaches
- Introducing coenzyme Q10 supplementation and tracking energy and muscle comfort
- A dietary change — reducing carbohydrates, increasing olive oil — and tracking glucose variability or energy
- A new exercise programme and tracking resting heart rate, sleep quality, or breathlessness
- A beta-blocker dose adjustment and tracking palpitations, exercise tolerance, or fatigue
- Monitoring menstrual cycle symptoms alongside cardiovascular symptoms in women

The diary does not care what the intervention is. It simply provides the structured visual scaffold onto which you map your experience. Over a year, it becomes your personal cardiovascular health record — a document of genuine scientific value that you bring to every clinical appointment.

What the research says

The N-of-1 methodology has a well-established evidence base. Studies have shown that individual-level trial results frequently diverge from population averages, confirming that group data is a poor guide to individual response. In the context of statins specifically:

- A **randomised crossover N-of-1 trial** published in the BMJ demonstrated that many patients who attributed symptoms to statins experienced similar symptoms on placebo, suggesting a significant nocebo component — but also identifying a genuine minority with true statin-related symptoms.
- Coenzyme Q10 (CoQ10) supplementation has shown mixed results in randomised controlled trials, but individual response varies widely. An N-of-1 approach allows *you* to find out whether you are a responder.

- The formal **N-of-1 trial framework** is endorsed by several clinical guidelines as a legitimate tool for evaluating symptom attribution in chronic disease management.

Part Two: The Manual

How to Use Your N-of-1 Symptom Diary

Step 1 — Before You Begin

Talk to your doctor first

This is not optional. A statin holiday is a **medical decision**. Your doctor needs to know because:

- Your cardiovascular risk level determines how safe a temporary break is. High-risk patients with established coronary disease need careful assessment.
- Your doctor may want to schedule a lipid panel before and after the holiday.
- There may be a better alternative — a lower dose, a different statin, or a non-statin option — that they can discuss with you.
- They need to know you are running a structured experiment, not simply stopping treatment.

Bring this guide with you to that appointment. Show them the diary. Most clinicians will welcome a patient who wants to engage this systematically.

Define your question

Before you record a single dot, write your question at the top of the diary page in the "My custom key" section. Be specific:

- *"Does rosuvastatin 10 mg cause my right thigh muscle cramps?"*
- *"Is my fatigue related to atorvastatin or to poor sleep?"*
- *"Does CoQ10 100 mg improve my exercise tolerance when on a statin?"*

A vague question produces vague data. A specific question points you toward the specific symptoms to track.

Choose your symptoms to track

Select **two to four symptoms** at most. Tracking too many dilutes your attention and makes the diary hard to interpret. Common choices:

- **Muscle symptoms:** cramps, aching, stiffness, weakness — note which muscle group
- **Joint symptoms:** arthralgia, morning stiffness
- **Energy:** overall fatigue, post-exercise recovery, brain fog
- **Cardiac symptoms:** palpitations, breathlessness at rest or on exertion, dizziness
- **Metabolic:** blood glucose readings if you have a CGM, weight changes

> **Tip: choose symptoms you experience regularly enough to track**

> If your muscle cramps happen only once a month, four weeks of recording may not give you enough data. Choose symptoms that occur at least weekly, or use severity scoring (dot size) even on mild days.

Step 2 — Setting Up Your Key

Colour coding

The diary provides a plain key area for you to define your own colour scheme. Suggested conventions:

Colour	Meaning	Example
Red dot / blob	Symptom you already had	Palpitation, chest pain, breathlessness
Green dot / blob	Possible side effect	Muscle cramp, joint pain, fatigue, brain fog
Blue dot / blob	Blood test or clinic visit	Lipid panel, HbA1c, BP measurement
Amber dot / blob	Dose or therapy change	Started statin, halved dose, added CoQ10

Dot size encodes severity

This is the single most important feature of the diary system. A **small dot** (the size of the target circle printed in each day cell) indicates a mild symptom or side effect that was noticeable but did not limit activity. A **medium dot** fills the lower half of the day cell and indicates moderate symptoms that were bothersome. A **large dot** filling most of the cell indicates severe symptoms that interrupted normal activity or caused significant distress.

No dot on a day means: symptom absent, or so minor it was not worth recording.

> **The power of the visual pattern**
>
> When you step back from a completed month, you should see at a glance: are bad days (large dots) clustering after a dose was taken? Are good weeks (empty cells) coinciding with the statin holiday? Does the pattern reset when the statin is restarted? This visual reading is the whole point — it reveals what memory alone cannot.

Step 3 — Recording Therapy Changes with Arrows

Symptom dots are only interpretable in the context of what treatment you were on. For this reason, the diary uses **horizontal arrows** drawn directly across the calendar row to mark the start and end of any therapy period.

How to draw therapy arrows

1. Draw a horizontal arrow beginning on the day you start a new therapy or dose.
2. Extend the arrow day by day until the therapy changes or stops, then cap it with an arrowhead pointing right (ongoing) or a vertical stop bar (discontinued).

3. Write the therapy name above the arrow in small handwriting: e.g. "Atorvastatin 10mg" or "CoQ10 100mg" or "HOLIDAY".
4. If two therapies run simultaneously (e.g. statin + CoQ10), draw two parallel arrow rows — one above the other — in different colours.

> **Example: what a statin holiday looks like on the diary**
>
> Weeks 1–4: Red arrow labelled "Rosuvastatin 10mg" with scattered medium green dots (muscle cramp days).
>
> Week 5: Arrow ends with a stop bar. Label: "HOLIDAY STARTS".
>
> Weeks 5–10: No arrow. Green dots progressively smaller and fewer.
>
> Week 11: New red arrow labelled "Rosuvastatin 10mg RESTART". Green dots reappear within 10 days.
>
> This three-phase visual pattern — improvement, then recurrence — is the personal evidence you and your doctor need.

Step 4 — The Four-Phase N-of-1 Trial Protocol

For a statin-related question, the most rigorous structure uses four consecutive phases. Each phase is recorded in the diary continuously:

Phase	Duration	Statin	What to record
1 — Baseline	2–4 weeks	Continue current dose	All symptoms daily using the diary
2 — Holiday	4–6 weeks	Stop (with GP approval)	Same daily symptom recording
3 — Rechallenge	4–6 weeks	Restart same statin	Same daily symptom recording
4 — Alternative	4–6 weeks	Lower dose or switch	Same daily symptom recording

What to do at the end of each phase

- **Review your dots.** Before starting the next phase, spend ten minutes looking at your diary. Do you see a change? Are the dots different in size, frequency, or colour compared to the previous phase? Note your observations in the notes space.
- **Book a GP review.** Share your completed diary page at a clinical appointment between phases 2 and 3, and again at the end of phase 4. Your doctor can see the visual pattern directly.
- **Blood tests.** Ask for a lipid panel at the end of phases 1 and 3 so you can also see the biochemical effect of the holiday and rechallenge.

Step 5 — Interpreting Your Results

What a positive result looks like

A positive result — evidence that your symptoms are statin-related — looks like this on the diary:

- Green dots (side effects) cluster in Phases 1 and 3 (on statin), and are sparse or absent in Phase 2 (holiday).
- The improvement during the holiday takes 2–4 weeks to develop (consistent with the pharmacokinetics of statin washout).
- The recurrence during rechallenge takes 1–3 weeks to redevelop.
- The pattern repeats consistently — it is not a one-off fluctuation.

What a negative result looks like

A negative result — evidence that symptoms are not statin-related — looks like this:

- Green dots are distributed similarly across all phases — including the holiday.
- Symptoms do not improve during the break, or improve and then improve further when the statin is restarted (suggesting another cause, or regression to the mean).
- The pattern shows no relationship to the therapy arrows.

A negative result is genuinely valuable. It tells you — and your doctor — that stopping the statin is unlikely to help, and that the search for the cause of your symptoms should look elsewhere. It protects you from unnecessarily discontinuing a medication that is reducing your cardiovascular risk.

Ambiguous results

Symptoms fluctuate. Some months will be worse than others for reasons entirely unrelated to medication — a chest infection, a stressful period at work, a new exercise programme. If your diary shows a confusing or inconsistent pattern:

- Add contextual notes in the margin (illness, holidays, life events) to explain anomalous weeks.
- Consider running a second cycle — repeating phases 2 and 3 — to see if the pattern reproduces.
- Discuss the diary with your doctor before drawing firm conclusions.

> **Important: do not interpret your diary in isolation**
>
> The diary is a tool to generate structured personal evidence — not a tool to make unilateral medical decisions. Always share your findings with a qualified healthcare professional before changing your treatment. The goal is an informed conversation, not self-prescription.

Step 6 — Supplementary Tracking

Coenzyme Q10: an adjunctive experiment

Some patients find that coenzyme Q10 (CoQ10) supplementation — typically 100–200 mg daily — reduces statin-related muscle symptoms. The evidence from trials is mixed, but individual response varies. If you wish to test CoQ10 in your N-of-1 framework:

5. Add an amber arrow labelled "CoQ10 100mg" to your diary on the day you start.
6. Run it for at least four weeks before evaluating.
7. Compare your green dot pattern before and after starting CoQ10, within the same statin phase.

8. If useful, try stopping CoQ10 while maintaining the statin to see if symptoms return.

Blood pressure and pulse

If you are tracking antihypertensive therapy, use a **home blood pressure monitor** and record your morning readings in the margin alongside your dot. A simple "/" notation (e.g. 138/84) next to the day cell gives a quick visual time series when you glance across the week.

Glucose monitoring

Statins have a small but real effect on glucose metabolism — particularly in individuals already at the boundary of pre-diabetes. If you wear a continuous glucose monitor (CGM) or check fasting glucose regularly, note readings in the diary. A blue dot on test days with the value in the margin creates a parallel biochemical record alongside the symptom dots.

Step 7 — Bringing Your Diary to the Clinic

The diary has been designed to be clinically legible. A doctor or nurse looking at it for thirty seconds should be able to see:

- When therapy changed (arrows with labels)
- How symptoms changed relative to therapy (dot pattern)
- The overall trend — improving, worsening, or unchanged

Before your appointment, prepare a one-paragraph verbal summary of what you observed. For example: *"I started the statin holiday on 5 May. By week three my muscle cramps had largely gone — from most days down to once or twice a week. I restarted the statin on 16 June and they returned within ten days, similar to before the break. You can see it clearly on the diary."*

This framing — **systematic observation + visual record + concise summary** — transforms a subjective complaint into structured evidence that can inform a clinical decision.

Appendix

Quick Reference Card

Evening routine (30 seconds)

9. Look at today's cell.
10. Did I have any symptom or side effect today? If yes, place a dot — size reflects severity.
11. What colour? Red = symptom I already had. Green = possible side effect. Blue = test day. Amber = dose change.
12. Any therapy change today? Draw or extend an arrow and label it.
13. Anything unusual today (illness, heavy exercise, stress)? Note in margin.

Glossary

- **N-of-1 trial:** A controlled experiment in which a single individual serves as their own subject and control, undergoing multiple treatment periods in structured sequence.
- **Statin holiday:** A planned, temporary discontinuation of statin therapy, agreed with a doctor, for the purpose of evaluating whether symptoms are statin-related.
- **Nocebo effect:** The phenomenon in which negative expectations of a treatment cause the experience of negative symptoms — the inverse of the placebo effect.
- **Rechallenge:** Restarting a treatment after a break, specifically to see whether symptoms that improved during the break return — the most clinically informative phase of an N-of-1 trial.
- **CoQ10 (Coenzyme Q10):** A naturally occurring antioxidant involved in mitochondrial energy production, sometimes used as a supplement to mitigate statin-related muscle symptoms.
- **Arthralgia:** Joint pain, which can be a side effect of statin therapy in some individuals.
- **LDL (Low-Density Lipoprotein):** The primary cholesterol-carrying particle implicated in atherosclerotic plaque formation; the principal target of statin therapy.
- **ApoB:** Apolipoprotein B, the structural protein on every atherogenic lipoprotein particle; a more precise marker of cardiovascular risk than LDL-C alone.

Further Reading

- Leatham E. *Statin Holiday.* Surrey Cardiovascular Clinic Blog, 2024. Available at: scvc.co.uk
- Leatham E. *The VAT-TRAP N-of-1 Companion.* Available on Amazon UK.
- GP Notebook. Statin holiday — clinical guidance. gpnotebook.com
- Herrett E et al. Effect of statin treatment vs usual care on muscle symptoms in patients with primary prevention: the StatinWISE randomised crossover trial. BMJ, 2020.
- Skarlovnik A et al. Coenzyme Q10 Supplementation Decreases Statin-Related Mild-to-Moderate Muscle Symptoms. Randomized Clinical Study. PMC, 2014.
- Guyatt G et al. Determining optimal therapy — randomized trials in individual patients. NEJM, 1986. (Foundational N-of-1 methodology paper.)

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